

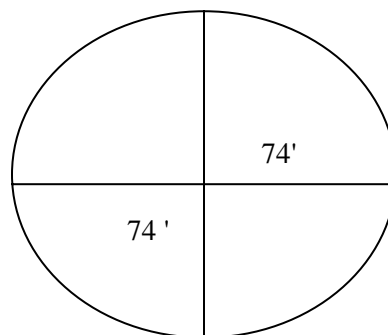
Chapter Nine MONITORING PLAN

9.1 How and Why to Monitor

An important part of both restoration and maintenance of Lincoln Park vegetation is active monitoring of vegetation condition and composition over time. Systematic monitoring and record keeping adds to organizational memory for citizen groups and Seattle Parks staff. Accurate records can highlight relative effectiveness of different management practices. Records also can be used to refine management practices, to determine who is best suited to perform particular tasks, and to learn how to make best use of limited citizen and Seattle Parks staff resources. Monitoring of work performed consistent with this plan thus completes a feedback loop, and assesses whether or not the management is meeting stated Goals and Objectives for the VMP.

Monitoring itself is an interesting and valuable activity that can be performed by citizen groups or individuals using standardized forms and methods to insure a consistent approach. For longterm monitoring to succeed, each monitor must collect information about an area identically. Monitoring of management areas may be done either in conjunction with active maintenance, or as a separate task. When choosing to monitor particular areas, volunteers or staff should refer to the management area map (Appendix F, Map F4.) to confirm appropriate MA names.

Monitoring is best conducted by walking to a randomly selected location in a given management area or specific project site. Individuals undertaking monitoring should establish a 1/10 acre circular plot for each identified location, most easily laid out as a 74 foot diameter circle. It is not necessary to be entirely precise in plot measurement. A 100 foot tape should be used to determine two diameters of 74 feet in length, from which the remainder of a circle can be estimated. Alternatively, a 37 foot radius can be struck from plot centerpoint to perimeter at several intervals, marking with flagging tape or stakes. For narrow areas like shoreline or ornamental borders, a similar-sized plot can be laid out with proportions practical for the location.



Monitoring Sample Plot
1/10 Acre in size

9.2 What, When and Where to Monitor

Monitors should resist the temptation to simply step off a Park trail and begin monitoring, or to choose areas of particular personal interest. For monitoring information to be useful, it is important to sample randomly throughout a management area, not just at the edges or in a preferred spot. In the case of designated restoration projects, monitoring plots must lie entirely within the project area.

Restoration monitoring will follow particular protocols established individually for projects.

Maintenance monitoring ideally should be completed in each Management Area, every year. The number of plots sampled does not need to be large, but should be dispersed over the entire geographical area. If this standard proves unrealistic to meet within resources available, greatest attention should be paid to high value and/or high hazard Park areas where resources and users are most vulnerable to changing conditions. This emphasis corresponds to recommended VMP implementation priorities. While not an entirely scientific approach, targeted monitoring can provide early warning about significant trends or situations needing prompt attention.

9.3 Restoration Project Monitoring

Planned implementation projects will require individual, customized monitoring plans to be developed concurrently with the project itself. Many of the same parameters as for maintenance monitoring likely will be included, but need to be tailored to fit the specific goals, site, and nature of restoration work proposed. **Project Monitoring** plans should include:

- Clearly-stated Goal(s) for project: a general statement of what result you are trying to achieve.
Example: Develop 1 acre of healthy mixed forest and shrub plant community.
- Clearly stated Objectives: more specific description of accomplishments to fulfill goals.
Example: Create forest canopy with at least three species, and shrub layer with at least six species.
- Performance Standards: measurable, quantifiable indicators of performance relative to baseline, pre-project conditions.
Example: Ground coverage by invasive species – maximum thresholds per species.
- Monitoring Methods: when, how often, how, and what data to collect; report format, who gets report, and when.
Specific requirements: Monitoring should be done once a year during growing season (June-July optimal) for 3-5 years, twice a year for likely problematic, high care sites. Reports should include: brief summary of project goals, objectives and performance standards, summary of monitoring results and status assessment relative to performance standards, and description of any recommended actions.
- Contingency Plan: contingency actions described to remedy predicted potential problems.
Example: Problem = Reinvasion by weeds beyond acceptable threshold.
Action needed = Increase weeding frequency from once to 3x/month until control is achieved.

9.4 Maintenance Monitoring

A set of checklists follows, tailored to monitor vegetation composition and condition in each of Lincoln Park's seven Management Areas. Individual checklists provide specific direction concerning what needs to be measured, observed and recorded to build a meaningful data set, then guide followup actions. **Maintenance Monitoring** checklist forms are designed to be copied and used for standardized monitoring of park vegetation maintenance and management by trained volunteers, Seattle Parks staff, or possibly, consultants. Their order matches the Management Area sequence used in Chapter 6 – Vegetation Management Recommendations.



Lincoln Park Maintenance Monitoring Checklist

DATE: _____ Observer's Name _____

Management Area: **Shoreline**

Boundaries of Management Area Monitored on this Date (describe or draw the limits):

Beach

OBSERVATIONS:

Percent coverage of woody invasive species present (check one)

☐ 0-10% ☐ 10-20% ☐ >20%

Percent coverage of weedy herbaceous species present (check one)

☐ 0-10% ☐ 10-20% ☐ >20%

ACTIONS:

If percent coverage for either is greater than 10%, do weeding and invasive control per Management and Maintenance Section

Promenade

OBSERVATIONS:

Percent coverage of woody non-native species present (check one)

☐ 0-10% ☐ 10-20% ☐ >20%

Percent coverage of weedy herbaceous species present (check one)

☐ 0-10% ☐ 10-20% ☐ >20%

ACTIONS:

If percent coverage for either is greater than 10%, do weeding and invasive control per Management and Maintenance Section

Other Shoreline areas

OBSERVATIONS:

ACTIONS:

SCHEDULE:

Work to be done by: ☐ Park Staff ☐ volunteers ☐ others

Targeted completion date:

Responsible DPR Staff

Date Work Completed



Lincoln Park Maintenance Monitoring Checklist

DATE: _____ Observer's Name _____

Management Area: **Bluff**

Boundaries of Management Area Monitored on this Date (describe or draw the limits):

Is there a plant installation in this Management Area? ☐ yes When? _____ ☐ no
If yes, has the project-specific monitoring plan for the installation been implemented?
☐ yes ☐ no

OBSERVATIONS:

Are there hazard trees that pose a risk to public health or safety? Describe in detail their location and condition.

Are any of the following present?

Holly >4' tall

☐ yes ☐ no

Laurel >4' tall

☐ yes ☐ no

Gorse >1' tall?

☐ yes ☐ no

English ivy up tree trunks or in tree crowns?

☐ yes ☐ no

Sparse English ivy on the ground?

☐ yes ☐ no

Hogweed present?

☐ yes ☐ no

Evidence of a recent land slide?

☐ yes ☐ no

Other? (specify)

ACTIONS:

Control and removal of non-native species at or below threshold sizes indicated above can be done without replacement planting. Removal of larger sizes or greater coverages may require replacement planting (project) per direction in Management and Maintenance section.

Pruning:

Removing Plants:

SCHEDULE:

Work to be done by: ☐ Park Staff ☐ volunteers ☐ others

Targeted Completion Date:

Responsible DPR Staff

Date Work Completed



Lincoln Park Maintenance Monitoring Checklist

DATE: _____ Observer's Name _____

Management Area: **Forest**

Boundaries of Management Area Monitored on this Date (describe or draw the limits):

Is there a plant installation in this Management Area? ☐ yes When? _____ ☐ no
If yes, has the project-specific monitoring plan for the installation been implemented?
☐ yes ☐ no

OBSERVATIONS:

Are there hazard trees that pose a risk to public health or safety? Describe in detail their location and condition.

Are any of the following present?:

Holly >4' tall?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Laurel >4' tall?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Cotoneaster >3' tall?	<input type="checkbox"/> yes	<input type="checkbox"/> no
English ivy up tree trunks or in tree crowns?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Sparse English ivy on the ground?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Himalayan blackberry overarchng natives?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Gorse > 1' tall?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Other? (specify)		

ACTIONS:

Control and removal of non-native species at or below threshold sizes indicated above can be done without replacement planting. Removal of larger sizes or greater coverages may require replacement planting (project) per direction in Management and Maintenance Practices Section.

Pruning:

Removing Plants:

SCHEDULE:

Work to be done by: ☐ Park Staff ☐ volunteers ☐ others

Targeted Completion Date:

Responsible DPR Staff

Date Work Completed



Lincoln Park Maintenance Monitoring Checklist

DATE: _____ Observer's Name _____

Management Area: **Passive Use Greensward**

Boundaries of Management Area Monitored on this Date (describe or draw the limits):

Is there a plant installation in this Management Area? ☐ yes When? _____ ☐ no
If yes, has the project-specific monitoring plan for the installation been implemented?
☐ yes ☐ no

OBSERVATIONS:

Are there hazard trees that pose a risk to public health or safety? Describe in detail their location and condition.

Are any of the following present?

English ivy up tree trunks or in tree crowns?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Sparse English ivy on the ground?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Himalayan blackberry overarchiving natives?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Noxious weeds (gorse, garlic mustard, hogweed)?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Area(s) of standing water?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Bare soil area(s) without vegetative or mulch cover?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Other? (specify)		

ACTIONS: (describe what, when, who, and where)

Mulching:

Pruning:

Removing Plants:

Taking Care of Turf:

Weeding and Invasive Control:

SCHEDULE:

Work to be done by: ☐ Park Staff ☐ volunteers ☐ others

Targeted Completion Date:

Responsible DPR Staff

Date Work Completed

**Lincoln Park
Maintenance Monitoring Checklist**

DATE: _____ Observer's Name _____

Management Area: **Lawns / Ballfields**

Limitations of Management Area Monitored on this Date (describe or draw the limits):

OBSERVATIONS:

Are any of the following present?

Area(s) of standing water?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Bare soil area(s) without vegetative or mulch cover?	<input type="checkbox"/> yes	<input type="checkbox"/> no
English ivy up tree trunks or in tree crowns?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Sparse English ivy on the ground?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Himalayan blackberry overarched natives?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Woody invasive plants taller than 4' (holly, laurel, etc.)?	<input type="checkbox"/> yes	<input type="checkbox"/> no

If yes, note species:

For perimeter areas:

Percent coverage of invasive woody shrubs present (check one)

☐ 0-10% ☐ 10-20% ☐ >20%

For turf areas:

Percent coverage of weedy herbaceous species present (check one)

☐ 0-10% ☐ 10-20% ☐ >20%

Are there hazard trees that pose a risk to public health or safety?

Describe in detail their location and condition.

ACTIONS:

SCHEDULE:

Work to be done by: ☐ Park Staff ☐ volunteers ☐ others

Targeted Completion Date:

Responsible DPR Staff

Date Work Completed

**Lincoln Park
Maintenance Monitoring Checklist**

DATE: _____ Observer's Name _____

Management Area: **Active Use Greensward**

Boundaries of Management Area Monitored on this Date (describe or draw the limits):

Is there a plant installation in this Management Area? ☐ yes When? _____ ☐ no
If yes, has the project-specific monitoring plan for the installation been implemented?
☐ yes ☐ no

OBSERVATIONS:

Are there hazard trees that pose a risk to public health or safety? Describe in detail their location and condition.

Are any of the following present?

English ivy up tree trunks or in tree crowns?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Sparse English ivy on the ground?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Himalayan blackberry overarchng natives?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Noxious weeds (gorse, garlic mustard, hogweed)?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Area(s) of standing water?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Bare soil area(s) without vegetative or mulch cover?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Other? (specify)		

ACTIONS: (describe what, when, who, and where)

Mulching:

Pruning:

Removing Plants:

Taking Care of Turf:

Weeding and Invasive Control:

SCHEDULE:

Work to be done by: ☐ Park Staff ☐ volunteers ☐ others

Targeted Completion Date:

Responsible DPR Staff

Date Work Completed

**Lincoln Park
Maintenance Monitoring Checklist**

DATE: _____ Observer's Name _____

Management Area: **Native/Ornamental Landscape**

Boundaries of Management Area Monitored on this Date (describe or draw the limits):

Is there a plant installation in this Management Area? ☐ yes When? _____ ☐ no
If yes, has the project-specific monitoring plan for the installation been implemented?
☐ yes ☐ no

OBSERVATIONS:

Are there hazard trees that pose a risk to public health or safety?
Describe in detail their location and condition.

Are there trees with >25% crown dieback or visible decline?
For each tree, note species, location and approximate % of crown affected:

Are any of the following present?

Himalayan blackberry overarching natives/ornamentals?	<input type="checkbox"/> yes	<input type="checkbox"/> no
English ivy up tree trunks or in tree crowns?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Sparse English ivy on the ground?	<input type="checkbox"/> yes	<input type="checkbox"/> no
Invasive woody plants >4' tall?	<input type="checkbox"/> yes	<input type="checkbox"/> no

If yes, note species (include both self-sown & planted ornamentals):

ACTIONS: (describe what, when, who, and where)

Mulching:

Pruning:

Removing Plants:

Weeding and Invasive Control:

SCHEDULE:

Work to be done by: ☐ Park staff ☐ volunteers ☐ others

Targeted Completion Date:

Responsible DPR Staff

Date Work Completed